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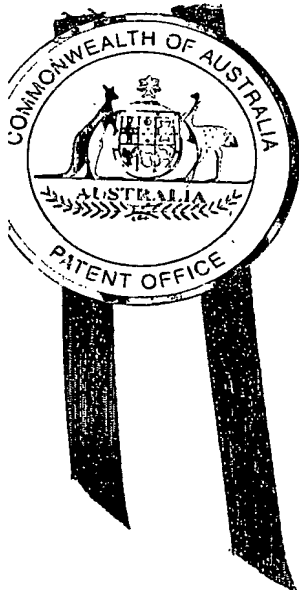
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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PR 9781 for a patent by M.J. BUSHBY (CONSULTING) PTY LTD as filed on 28 December 2001.



WITNESS my hand this  
Fifteenth day of January 2003

*J. Billingsley*

JULIE BILLINGSLEY  
TEAM LEADER EXAMINATION  
SUPPORT AND SALES

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ORIGINAL

COMMONWEALTH OF AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:-

**THERMOPLASTIC CAN**

The invention is described in the following statement:

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The present invention relates to a thermoplastic can and in particular a two piece bottom fill can wherein a permanent base to container seal is effected between a peripheral portion of the base and an internally facing surface adjacent to the lower extremity of the body of the can.

There are many applications where the advantages of a can, and particularly a thermoplastic can, have not yet been exploited due to the lack of a suitable container. For example oil is still commonly sold in bottles and furthermore many food products such as powders or even potato chips are sold in foil lined tubes which are relatively expensive and cumbersome to construct. Of course steel cans are available but these are relatively expensive to produce compared with moulded thermoplastic articles. Thermoplastic cans would naturally have the advantage over and above a necked container such as a bottle for filling and ease of moulding if a satisfactory product was currently available. A necked bottle involves a lengthy mould cycle as compared with an open necked thermoplastic container.

To date however no satisfactory thermoplastic can has yet been proposed probably due to the difficulty of effecting a satisfactory seal between an open neck and a closure.

It is accordingly an object of the present invention to ameliorate one or more of the above mentioned difficulties with existing containers or at least to provide the market with an alternative.

According to the present invention there is provided a thermoplastic can comprising a thermoplastic body having a disc like top moulded as one with a tubular element defining the sides of the body and extending downwardly from the peripheral portions of the top; means associated with the top to facilitate opening by an end user; a disc like thermoplastic base member having an externally directed bead adapted to sealingly engage a relatively thin walled recess in the radially internally facing lower peripheral portion of the body recess and thereby effect a permanent seal at the base of the container after filling thereof.

One embodiment of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a side elevation of a can in accordance with the present invention;

Figure 2 is a perspective view of a can in accordance with Figure 1;

Figure 3 is a detail of a lower peripheral portion of the can of Figure 1 in section, and

Figure 4 is a side elevation of a base for sealing engagement with the can of Figures 1 and 2.

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With reference now to Figure 1 there is disclosed a container 1 having a thermoplastic body portion 2 comprising a disc like top portion 3 being unitary with and extending adjacent its peripheral edges 4 into a tubular element 5 to form a container having an opening 6a through which fast filling of the can is possible utilising automated machinery (not shown).

With reference to Figure 4 there is disclosed a base 7 adapted to fit within opening 6a to effect a permanent sealing of that opening.

The lower peripheral portion of tubular element 5 and the outer peripheral portion of base 7 are responsible for effecting a seal when base 7 lies within opening 6a as depicted in part section in Figure 3.

With reference now to Figure 3 it will be observed that base 7 is provided with an externally and downwardly directed annular protrusion 8 which during insertion of base 7 into opening 6a of tubular element 5 rides over and within the bottom of lower extremity 6 of the tubular element and then expands radially outwardly to jump into recess 9 above the bottom of lower extremity 6.

It will be observed that the wall of the lower extremity 6 of tubular element 5 adjacent recess 9 is considerably thinner than the thickness of the bottom of lower extremity 6 of tubular element 5 therebeneath. This

differential in thickness of the wall at the positions adjacent to the seal between recess 9 and protrusion 8 and therebeneath permits minor radially outward movement of the thin walled area of the recess 9 and also radially inward creeping of the thicker walled area beneath the undercut due to the memory of the thermoplastic material after insertion of protrusion 8. During installation of base 7 into opening 6a initially the bottom of lower extremity 6 of tubular element 5 tends to move radially outwardly. The post base installation movements tend to increase the integrity of the seal formed at the recess 9. In this embodiment a primary seal is also effected at 10 by the containment of flexible upper annular peripheral extension 11 of base 7 within arcuate recess 12 in tubular element 5.

It will be appreciated therefore that the embodiment depicted with reference to Figure 3 contains a primary seal at 10 and a secondary seal at recess 9 with the seal effected at 9 also comprising a mechanical interference fit which prevents removal of the base 7 after sealing of the open base of the can 1.

The can is of course provided with opening means for use by a consumer in upper disc 3. This may comprise a scored area provided with a ring pull in order to facilitate removal of part or most of the top of the can or indeed any other known method for opening a thermoplastic container. For example in respect of oil containers the container may be opened by

spearing a steel spike into the top of the container which spike may comprise a spout.

Whatever the configuration of the seal between the base and the body of the container it will be appreciated that the large opening of a two piece can is available to facilitate quick filling prior to sealing of the base and furthermore the mould cycle time of an open container as distinct from a bottle type container is significantly reduced. The reduction in this cycle time is significant as cycle times in connection with thermoplastic necked bottles are in the order of fourteen to sixteen seconds whereas the mould cycle time for a can body in accordance with the present invention is approximately six seconds. Alternate sealing arrangements apart from those depicted in Figure 3 may be devised without departing from the scope and intentment of the present invention.

DATED this 28th day of December 2001.

M.J. BUSHBY (CONSULTING) PTY LTD

by their Patent Attorneys

Barker Blenkinship & Associates

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FIG. 4.

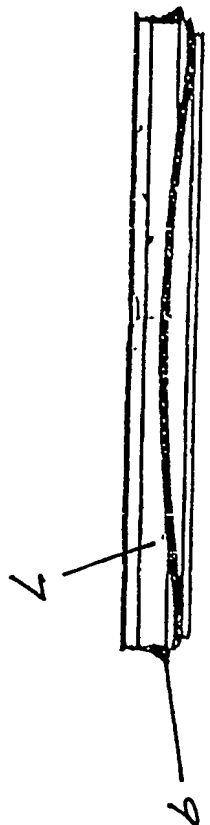


FIG. 3.

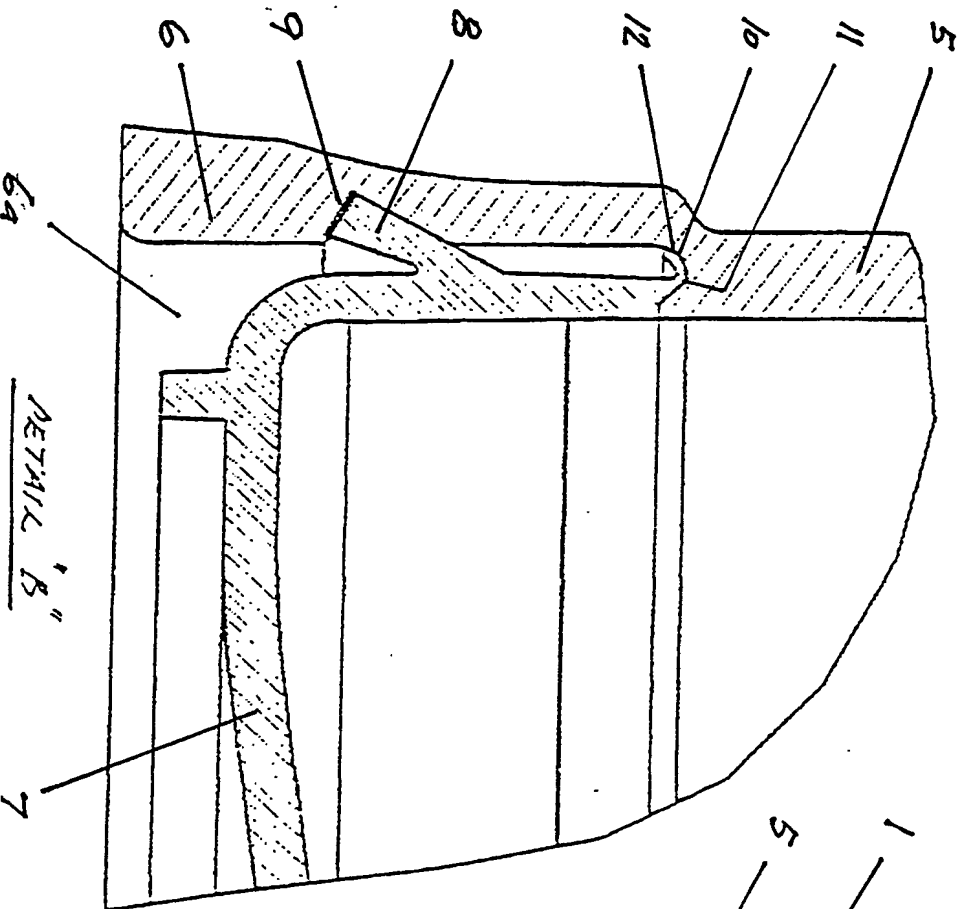
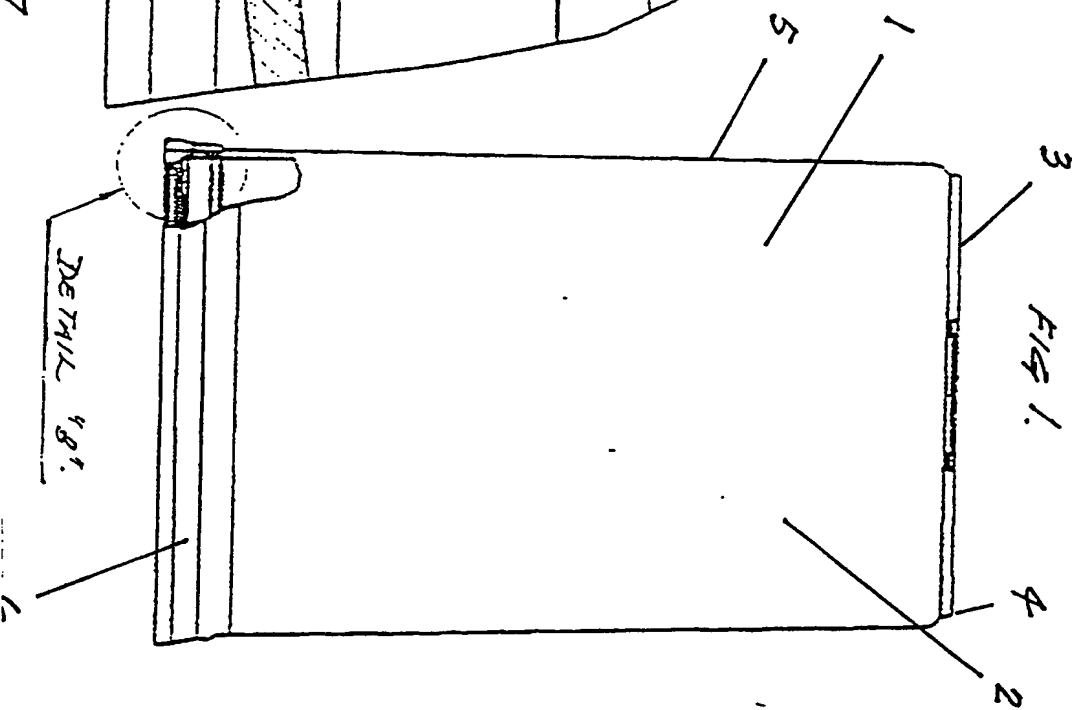


FIG. 1.





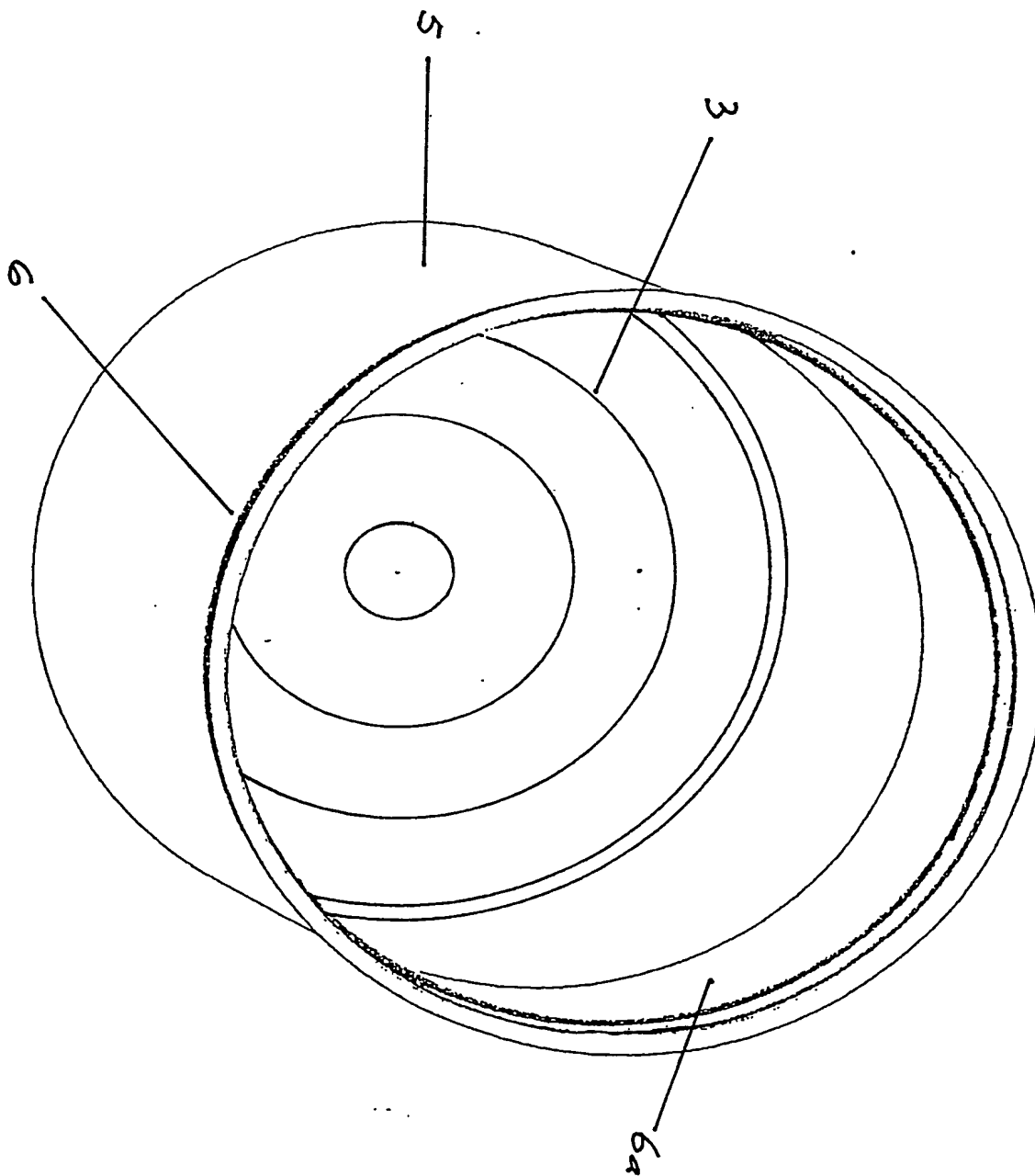


Fig. 2.

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